

## **REMARKS/ARGUMENTS**

Claims 1, 9, 12-13, 17-19, and 65 have been resubmitted. Claims 1 and 12 are amended. Claims 2-8, 10, 11, 14-16, 20-64, and 66 were canceled previously. No new claims are added.

Claims 1, 9, 12-13, 17-19 and 65 were rejected under 35 USC 112, first paragraph as failing to comply with the written description requirement.

### **Claim Amendments**

Claim 1 is amended such that the first adsorbent material has a surface area greater than  $1000 \text{ m}^2/\text{g}$  and the second adsorbent material has a surface area within  $1500 \text{ m}^2/\text{g}$  and  $2500 \text{ m}^2/\text{g}$ . Paragraph [0075] of the instant specification supports these ranges. No new matter is added.

### **Examiner Interview**

Applicants thank the Examiner for taking the time to call back Applicant's representative on February 23, 2009. Applicants proposed the above amendments to the Examiner, and the Examiner agreed that the ranges were present in the specification. On February 25, 2009, the Examiner called Applicant's representative back to further discuss the claims. In particular, the Examiner expressed a concern that there was no support for the first adsorbent unit having the particular values as recited in the claim and the second adsorbent unit having the other particular values as recited in the claim. Applicants proposed a careful review of the originally filed application to find support for a) the first adsorbent unit having a first adsorbent material with a surface area greater than  $1000 \text{ m}^2/\text{g}$  and pore diameters within  $6 \text{ \AA}$  to  $600 \text{ \AA}$

and b) a second adsorbent unit having a second adsorbent material with a surface area within 1500m<sup>2</sup>/g to 2500 m<sup>2</sup>/g and pore diameters within 5 Å to 10 Å. Applicants believe the below discussion provides written description support for the claims as presented herewithin.

#### Claim Objections

Claim 12 is objected to as being dependent upon a rejected claim. Claim 12 is amended to depend from independent claim 1. Reconsideration and withdrawal of the objection to claim 12 is requested.

#### Claim Rejections – 35 USC 112

Claims 1, 9, 12-13, 17-19 and 65 stand rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. More specifically, the Examiner found lack of support for the endpoints of the claimed ranges for the surface area of the adsorbents.

Applicants have amended claim 1 so that the first adsorbent material has a surface area greater than 1000 m<sup>2</sup>/g and the second adsorbent material has a surface area within 1500 m<sup>2</sup>/g to 2500 m<sup>2</sup>/g. Support for the endpoints for both of these ranges may be found in the originally filed specification at paragraph [0075] and, thus, satisfies the written description requirement.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1, 9, 12-13, 17-19 and 65 under 35 USC 112, first paragraph.

In the telephone interview of February 25, 2009, as discussed above, the Examiner suggested that there is lack of written description for the feature that a) the first adsorbent material has a surface area greater than 1000 m<sup>2</sup>/g and pore diameters within 6 Å to 600 Å and b) the second adsorbent material has a surface area within 1500m<sup>2</sup>/g to 2500 m<sup>2</sup>/g and pore diameters within 5 Å to 10 Å. More specifically, the Examiner questioned written description surrounding the specific assignment of one range to the first adsorbent material and of another range to the second adsorbent material.

Paragraph [0071] of the originally filed disclosure states that “a pulse in pollutant concentration in an air stream entering an air cleaner unit of the invention will adsorb onto a first adsorbent unit. The higher pollutant concentration in the air stream thermodynamically translates into a higher adsorption capacity for the adsorbent of the first adsorbent unit. Consequently, the PCO unit downstream from the first adsorbent unit may be spared from receiving an unmanageably high pulse or concentration of the pollutant. ... The first adsorbent unit thus serves to store a pulse of elevated pollutant concentration, and subsequently meters the pollutant (via equilibrium-driven desorption) to the PCO unit at a manageable rate.” Therefore, the first adsorbent unit may be used for the pollutant pulses (such as bursts of higher concentration pollutants).

Paragraph [0072] of the originally filed disclosure states, “For an adsorbent unit which is located downstream from all PCO units of a given air cleaner unit of the invention, an adsorbent material having a relatively steep isotherm curve may be used. This is because adsorbent materials having steeper isotherm curves will tend to desorb pollutants only very slowly, or adsorb pollutants irreversibly, thereby preventing or minimizing the release of such pollutants. The quantity of adsorbent needed for the second adsorbent

unit may be much less than would otherwise be required in the absence of an upstream PCO unit, since the PCO unit consumes most of the impurity." Therefore, the unit downstream of the PCO (the second adsorbent unit) functions to adsorb the low concentration pollutants, since the PCO unit (upstream) consumes most of the impurity.

Tying the above together, paragraph [0075] of the originally filed disclosure describes one possibility where "if during operation, it is expected that there will frequently be a relatively high concentration (e.g., >10 ppm) of pollutant for a relatively extended period (e.g., >15 minutes), followed by an extended period (e.g., >15 minutes) of no load, an adsorbent having a relatively large pore capacity (e.g., >1000 m<sup>2</sup>/g) and broad porosity (e.g., having pore diameters in the range of from about 6 to 600 Å) may be useful." This is the situation described above with respect to pollutant "pulses" for which the first adsorbent unit would be useful. Therefore, the first adsorbent unit may be understood to be useful with those particular parameters as claimed in claim 1, as amended.

Paragraph [0075] of the originally filed disclosure also describes that "for the removal of pollutants present at generally low concentration (e.g., <10 ppm) with periodic spikes (<15 minutes), adsorbents having a relatively high surface area (e.g., having a surface area >1000 m<sup>2</sup>/g, usually from about 1000-2500 m<sup>2</sup>/g, and often from about 1500-2500 m<sup>2</sup>/g) and having fine porosity (e.g., having micropores in the range of about 5-10 Å in diameter) may be preferred. ... While not being bound by theory, micropores in the 5-10 Å diameter range may allow condensation of the pollutant within the micropores at the low partial pressures associated with low concentrations (e.g., <10 ppm) of pollutant." This low concentration situation is that described above with respect to the second

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adsorbent unit. Therefore, the second adsorbent unit may be understood to be useful with those particular parameters as claimed in claim 1, as amended.

Applicants respectfully request entry of the above amendment after final as placing the application in condition for allowance.

### CONCLUSION

Reconsideration and withdrawal of the Office Action with respect to claims 1, 9, 12-13, 17-19, and 65 is requested. Applicants submit that the claims are now in condition for allowance.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment to Deposit Account No. 50-0851.

Respectfully submitted,

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